
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Schwartzman et al.

Attorney Docket No.: CISC203/1939

Application No.: 09/846,849

Examiner: USTARIS, JOSEPH G.

Filed: May 2, 2001

Group: 2623

Title: METHODS AND APPARATUS FOR
ENABLING AND DISABLING CABLE
MODEM RECEIVER CIRCUITRY

Confirmation No: 5618

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I hereby certify that this correspondence is being transmitted electronically through EFS-WEB to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450 on June 4, 2008.

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal and is being requested for the reasons stated below.

Independent claims was rejected under 35 U.S.C. 103(a) as being unpatentable over a four-way combination of Chiu (US005883901A) in view of Burke (US006233235), further in view of Sawyer (US006765925), and further still in view of Hillman (US006522265).

Chiu describes a Signal Conversion System (SCS) connected to a cable modem. The Signal Conversion System (SCS) uses the Disable/Enable Cable Modem Request subframe type “to turn on and off a particular cable modem 113. The subframe type is 0x03 for Disable and 0x05 for Enable. The Disable/Enable CM subframe is a six-byte MAC modem address field that uniquely identifies the particular CM 113 the frame is directed to.” (Col 12, Lines 45-51) The Examiner notes that “Chiu does not disclose disabling the cable modem for periodic intervals separated by activation windows.”

Burke describes an alert system. “The alert phase 166 as provided in accordance with the alert queue 60, creates an alert time phase based on the group number N, and then sends the alert phase to the subscriber unit 16,18. A trap 168 is provided in connection with the CMTS operating logic in order to filter all messages destined for registered subscriber units 16, 18. The filtering operation provided by the trap 168 traps out telephony start/alert messages, and queues up such messages in the alert phase bins 0-127 of the alert queue 60. A master clock 170 is provided for the communication system 10 in order to provide precise timing intervals based on the wake times and the number of groups N, and thus master clock signals are generated using the alert messages” (column 8, line 64 – column 9, line 10)

Sawyer describes a technique for “maintaining state information for a network device changing from a first channel (in communication with a first base unit) to a second channel (in communication with a second base unit) communicates with at least one of the first base unit and an intermediate network device to ascertain the state information. Once the state information is ascertained, it is applied to the communication of the network device with the second base unit. Both the first and second base units are independently operable network devices in a data transmission network.” (column 2, lines 46-55)

Chiu, Burke, and Sawyer even if appropriately combined do not teach or suggest varying activation window length. Furthermore, none of the cited references teaches or suggests changing activation length based on drift. The Examiner argues that Hillman describes a system that modulates and demodulates data on a carrier frequency much like cable modems. The Examiner argues that anyone of skill in the art would recognize that any network is susceptible to noise thereby causing clock drifts between devices. The Examiner states that Hillman discloses an activation window length (e.g. wakeup window) that is varied based on drift between a cable modem (e.g. receiver clock) and a headend clock (e.g. monitoring center clock).

The Applicants respectfully disagree. The Applicants argued that Hillman lies in an unrelated art area. Hillman does not describe any cable modem clock nor any headend clock. In fact Hillman does not describe any cable modem network at all. Hillman describes a GPS receiver and a cellular receiver in a vehicle in a nonanalogous art area. The Examiner is believed to be relying on a four way combination of references including a reference that has little to do with cable modems. Hillman describes a vehicle tracking and security system. The Examiner argues that a cable modem network is shown in Figures 1 and 4 and column 9, lines 3-13, however, these sections only show a standard cellular and telephone network. There is no cable modem network. There is a modem. However, the modem is a standard telephone network modem. Engineers working in the cable modem area generally do not have expertise in vehicle

tracking and security and would not likely look to this nonanalogous art area. “During the wake-up window, a monitoring center can call the vehicle 10 and, if necessary, unlock the vehicle doors, flash the vehicle lights, honk the vehicle horn, update a clock in the vehicle 10, etc.” (column 17, lines 47-51) In some examples, “the technician at the monitoring center 12 can respond to the information from the vehicle 10. For example, the monitoring center 12 can provide directions, dispatch mechanical assistance, a tow truck, police, fire or ambulatory assistance, or assist the vehicle's occupants with other assistance. During the entire process the monitoring center 12 maintains continual verbal contact with the vehicle's occupants and obtains continual location data to monitor the vehicle's location in real time.” (column 13, lines 53-58)

Hillman differs not only in scale, but differs also in communications mechanisms and protocols. Hillman describes how a vehicle such as a car with a tracking and security system can save power by powering off its GPS receiver and its cellular receiver. When the GPS receiver and the cellular receiver are powered on, the vehicle and its occupant can receive services. Because Hillman differs so much in terms of scale, one of skill in the art in the cable modem industry would not look to the GPS industry for inspiration. More specifically, Hillman talks about activations windows in terms of tens of minutes. The only example describe is “the wake-up windows are roughly 2 minutes long and occur at 20-minute intervals.” (column 17, line 37) Hillman also talks about drift in terms of minutes per week. “Thus, for example, if the clock in the vehicle drifts by up to $\pm .2$ min per week...”

This scale and type of communication mechanism would not work in the cable modem context. Cable modem artisans typically do not have familiarity with vehicle tracking and security systems. Even if they were to look in this nonanalogous art area and found Hillman, the Hillman reference would not work in the cable modem context as the scales and protocols used are impractical.

Dependent claims 3 and 30 also recite “wherein the unicast SYNCH message contains periodic interval and activation window information.” The Examiner notes that the four-way combination of Chiu in view of Burke in view of Sawyer in view of Hillman do not teach or suggest a unicast SYNCH message that includes period interval and activation window information. The Examiner relies on Brusaw to teach or suggest this element.

However, this five-way combination, even if there is sufficient motivation to combine each of the five disparate pieces of art, still does not teach or suggest any unicast SYNCH message that includes periodic interval and activation window information.

Brusaw describes a computer controlling a television set. “A billing system for billing for the use of television sets in a hospital, hotel or the like includes a computer located in a

billing office and television sets located in various rooms.” (Abstract) “The Slave command is used when, for example, it is desired that a patient view a particular program which may be a video taped explanation of an operation procedure he is about to undergo, an illustration of rehabilitation procedures, etc. The slave command may be one of two types: Slave and Hold or Slave and Release. The type is specified by one byte in the Update Info field of the command. A Slave and Hold command exercises absolute control over the TV receiver. It turns the receiver on and tunes the receiver to the specified channel at a start time specified in the command. At an end time specified in the command, control is relinquished and the receiver is returned to the channel which was last viewed prior to the start time.” (Figure 8 Description)

Brusaw allows a computer system to change a receiver television channel and control a television set completely. Although Brusaw does describe times, these times are merely times a computer system will control a television or times when control will be relinquished to a user. There is nothing periodic about these times. Furthermore, Brusaw’s computer system can send a command to the television at anytime, because the circuit receiving commands from the computer system is always on. For billing purposes, it is important to have a continuous connection between the computer system and the television with no periodic intervals of deactivation. Furthermore, there is no activation window information because the circuit receiving commands from the computer system is always on. It is true that computer system can instruct a television to tune a channel receiver to a particular television channel, but these are not activation windows and periodic intervals.

Furthermore, the command message is not a unicast SYNCH message. The command messages do not perform any SYNCH function and are not described as any unicast message. Furthermore, Brusaw applies to television sets controlled by a computer, which is again a distinct art area from cable modem networks. Consequently, dependent claims 3 and 30 are believed allowable.

Dependent claims 8, 20, 35, 51, and 61 recite “wherein multicast messages the cable modem receives during the activation window are ignored.” The Examiner indicates that the four-way combination of Chiu in view of Burke in view of Sawyer in view of Hillman do not teach or suggest this recitation and relies on Wall to describe this recitation. However, this five-way combination, even if there is sufficient motivation to combine the disparate art references, does not teach or suggest “wherein multicast messages the cable modem receives during the activation window are ignored.” The activation window, as noted in the base claims, is the period when the receiver circuitry is enabled to receive messages.

Wall does describe mechanisms for ignoring multicast messages. “[0018] In a multicast environment, a properly configured computational device can perform one operation to transmit data to multiple destination devices. For example, using multicasting a person can transmit video data to many different computers by initiating a single multicasting session. Under the multicast model only network nodes that are actively interested in receiving a particular multicast have such data routed to them. On some networks, certain network nodes automatically ignore multicast data. For example, some network routers are configured to prevent multicast data from entering a subnet. Computational devices designed to implement firewalls or other such filtering mechanisms may also be configured to ignore multicast data.” However, none of these mechanisms including firewalls, filtering mechanisms, network router blocking have any information to ignore “during activation windows.” These firewalls, filtering mechanisms, and network routers have no information about activation windows associated with individual cable modems and may indiscriminately block or block using other criteria such as address resolution, but these mechanisms can not block based on individual cable modem activation. Although multicast messages may be blocked, there is no teaching or suggestion that multicast message received during an activation window should be blocked.

In light of the above remarks relating to independent claims, the remaining dependent claims are believed allowable for at least the reasons noted above. Applicants believe that all pending claims are allowable. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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APPENDIX OF PENDING CLAIMS

1. (Previously Presented) A method for disabling and enabling receiver circuitry in a cable modem connected to a headend in a cable modem network, the method comprising:
 - transmitting a first message with first instructions from the headend to the cable modem to disable the cable modem receiver circuitry for periodic intervals separated by activation windows;
 - maintaining at the headend an indication of cable modem receiver circuitry state;
 - transmitting a second message with second instructions from the headend to enable the cable modem receiver circuitry such that the cable modem receives the second message during an activation window, wherein the headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock; and
 - setting the indication of cable modem receiver circuitry state to enabled.
2. (Original) The method of claim 1, wherein the first message with first instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.
3. (Original) The method of claim 2, wherein the unicast SYNCH message contains periodic interval and activation window information.
4. (Original) The method of claim 1, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.
5. (Original) The method of claim 1, wherein the activation window is 100 milliseconds.
6. (Original) The method of claim 1, wherein each periodic interval is 10 seconds.
7. (Original) The method of claim 1, wherein messages the cable modem receives during the periodic interval are ignored.
8. (Original) The method of claim 1, wherein multicast messages the cable modem receives during the activation window are ignored.
9. (Original) The method of claim 1, wherein transmitter circuitry is disabled when receiver circuitry is disabled.
10. (Original) The method of claim 1, wherein no messages are transmitted from the cable modem to the headend during the periodic intervals.
11. (Previously Presented) A method for disabling and enabling cable modem receiver circuitry connected to a headend in a cable modem network, the method comprising:
 - receiving a first message with first instructions from the headend to disable the cable modem receiver circuitry for periodic intervals separated by activation windows;
 - disabling the cable modem receiver circuitry;
 - receiving a second message with second instructions to enable the cable modem receiver circuitry from the headend during an activation window, wherein the headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock; and
 - enabling cable modem receiver circuitry.
12. (Original) The method of claim 11, wherein the first message with first instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.
13. (Original) The method of claim 11, wherein cable modem receiver circuitry comprises an RF amplifier, a mixer, a phase lock loop, and an IF amplifier.

14. (Original) The method of claim 13, wherein the cable modem receiver circuitry further comprises a demodulator.

15. (Original) The method of claim 14, wherein the cable modem receiver circuitry further comprises one or more processors coupled with memory.

16. (Original) The method of claim 11, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.

17. (Original) The method of claim 11, wherein the activation window is 100 milliseconds.

18. (Original) The method of claim 17, wherein each periodic interval is 10 seconds.

19. (Original) The method of claim 11, wherein messages the cable modem receives during the periodic interval are ignored.

20. (Original) The method of claim 11, wherein multicast messages the cable modem receives during the activation window are ignored.

21. (Original) The method of claim 11, wherein transmitter circuitry is disabled when receiver circuitry is disabled.

22. (Original) The apparatus of claim 11, wherein no messages are transmitted from the cable modem to the headend during the periodic intervals.

23. (Previously Presented) A computer readable medium embodying computer code that is executed on a processor for disabling and enabling cable modem receiver circuitry connected to a headend in a cable modem network, the computer readable medium comprising:

computer code embodied on a computer readable medium for transmitting a first message with first instructions from the headend to the cable modem to disable the cable modem receiver circuitry for periodic intervals separated by activation windows;

computer code embodied on a computer readable medium for setting an indication of cable modem receiver circuitry state to disabled;

computer code embodied on a computer readable medium for transmitting a second message with second instructions to enable the cable modem receiver circuitry from the headend so that the cable modem receives the message during an activation window, wherein the headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock; and

computer code embodied on a computer readable medium for setting the indication of cable modem receiver circuitry state to enabled.

24. (Previously presented) The computer readable medium of claim 23, wherein the first message with first instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.

25. (Previously presented) The computer readable medium of claim 23, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.

26. (Previously presented) The computer readable medium of claim 23, wherein the activation window is 100 milliseconds.

27. (Previously presented) The computer readable medium of claim 23, wherein each periodic interval is 10 seconds.

28. (Previously Presented) A headend connected to cable modems in a cable modem network, the cable modems comprising receiver circuitry that can be disabled and enabled, the headend comprising:

transmitter circuitry for transmitting a first message with first instructions from the headend to the cable modem to disable the cable modem receiver circuitry for periodic intervals separated by activation windows and for transmitting a second message with second instructions

from the headend to enable the cable modem receiver circuitry such that the cable modem receives the second message during an activation window;

memory; and

one or more processors coupled with the memory and the transmitter circuitry, the one or more processor configured to set an indication of cable modem state to disabled to correspond with the receipt of the first message by the cable modem and to set the indication of cable modem state to enabled to correspond with receipt of the second message by the cable modem during the activation window, wherein the processor is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock.

29. (Original) The apparatus of claim 28, wherein the first message with first instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.

30. (Original) The apparatus of claim 29, wherein the unicast SYNCH message contains periodic interval and activation window information.

31. (Original) The apparatus of claim 28, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.

32. (Original) The apparatus of claim 28, wherein the activation window is 100 milliseconds.

33. (Original) The apparatus of claim 28, wherein each periodic interval is 10 seconds.

34. (Original) The apparatus of claim 28, wherein messages the cable modem receives during the periodic interval are ignored.

35. (Original) The apparatus of claim 28, wherein multicast messages the cable modem receives during the activation window are ignored.

36. (Original) The apparatus of claim 28, wherein transmitter circuitry is disabled when receiver circuitry is disabled.

37. (Original) The apparatus of claim 28, wherein no messages are transmitted from the cable modem to the headend during the periodic intervals.

38. (Previously Presented) An apparatus with receiver circuitry connected to a cable network that can be disabled or enabled by a cable network headend, the apparatus comprising:

receiver circuitry configured to receive messages from the cable network when the receiver circuitry is enabled and during activation windows between periodic intervals when receiver circuitry is disabled;

transmitter circuitry for sending data onto the cable network;

memory; and

one or more processors coupled with the memory, the processors configured to disable the receiver circuitry when a first message received contains first instructions to disable and to enable the receiver circuitry when a second message received during an activation window contains second instructions to enable the receiver circuitry, wherein the cable network headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock.

39. (Original) The apparatus of claim 38, wherein the first message containing instructions to disable the receiver circuitry is a SYNCH message.

40. (Original) The apparatus of claim 39, wherein the SYNCH message contains information on activation window and periodic interval lengths.

41. (Original) The apparatus of claim 38, wherein the second message containing instruction to enable the receiver circuitry is a SYNCH message.
42. (Original) The apparatus of claim 38, wherein receiver circuitry comprises an RF amplifier, a mixer, a phase lock loop, a filter, and an IF amplifier.
43. (Original) The apparatus of claim 42, wherein receiver circuitry further comprises a demodulator.
44. (Original) The apparatus of claim 43, wherein the receiver circuitry further comprises one or more processors coupled with memory.
45. (Previously Presented) An apparatus for disabling and enabling cable modem receiver circuitry connected to a headend in a cable modem network, the apparatus comprising:
means for transmitting a first message with first instructions from the headend to the cable modem to disable the cable modem receiver circuitry for periodic intervals separated by activation windows;
means for setting an indication of cable modem receiver circuitry state to disabled;
means for transmitting a second message with second instructions from the headend to enable the cable modem receiver circuitry such that the cable modem receives the second message during an activation window, wherein the headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock; and
means for setting an indication of the cable modem receiver circuitry state to enabled.
46. (Original) The apparatus of claim 45, wherein the first message containing instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.
47. (Original) The apparatus of claim 45, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.
48. (Original) The apparatus of claim 45, wherein the activation window is 100 milliseconds.
49. (Original) The apparatus of claim 45, wherein each periodic interval is 10 seconds.
50. (Original) The apparatus of claim 45, wherein messages the cable modem receives during the periodic interval are ignored.
51. (Original) The apparatus of claim 45, wherein multicast messages the cable modem receives during the activation window are ignored.
52. (Original) The apparatus of claim 45, wherein transmitter circuitry is disabled when receiver circuitry is disabled.
53. (Original) The apparatus of claim 45, wherein no messages are transmitted from the cable modem to the headend during the periodic intervals.
54. (Previously Presented) An apparatus for disabling and enabling cable modem receiver circuitry connected to a headend in a cable modem network, the apparatus comprising:
means for receiving a first message with first instructions from the headend to disable the cable modem receiver circuitry for periodic intervals separated by activation windows;
means for disabling the cable modem receiver circuitry;
means for receiving a second message with second instructions to enable the cable modem receiver circuitry from the headend between periodic intervals during an activation window, wherein the headend is configured to identify the activation window corresponding to the time the cable modem receiver circuitry is enabled prior to transmitting the second message during the activation window, wherein activation window length is varied based on drift between a cable modem clock and a headend clock;
means for enabling cable modem receiver circuitry.

55. (Original) The apparatus of claim 54, wherein the first message with first instructions from the headend to disable the cable modem receiver circuitry is a unicast SYNCH message.

56. (Original) The apparatus of claim 54, wherein cable modem receiver circuitry comprises an RF amplifier, a mixer, a phase lock loop, and an IF amplifier.

57. (Original) The apparatus of claim 56, wherein the cable modem receiver circuitry further comprises a demodulator.

58. (Original) The apparatus of claim 57, wherein the cable modem receiver circuitry further comprises one or more processors coupled with memory.

59. (Original) The apparatus of claim 54, wherein the second message with second instructions to enable the cable modem receiver circuitry is a unicast SYNCH message.

60. (Original) The apparatus of claim 54, wherein messages the cable modem receives during the periodic interval are ignored.

61. (Original) The apparatus of claim 54, wherein multicast messages the cable modem receives during the activation window are ignored.

62. (Original) The apparatus of claim 54, wherein transmitter circuitry is disabled when receiver circuitry is disabled.

63. (Original) The apparatus of claim 54, wherein no messages are transmitted from the cable modem to the headend during the periodic intervals.